Calculus 1 Workbook

Squeeze theorem

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MATH

SQUEEZE THEOREM

■ 1. Use the Squeeze Theorem to evaluate the limit.

$$\lim_{x\to 0} x^2 \sin\left(\frac{1}{x}\right) - 2$$

■ 2. Use the Squeeze Theorem to evaluate the limit.

$$\lim_{x\to \infty} \frac{3\sin x}{4x}$$

■ 3. Use the Squeeze Theorem to evaluate the limit.

$$\lim_{x\to 0} x^2 \cos\left(\frac{1}{x^2}\right) + 1$$

■ 4. Use the Squeeze Theorem to evaluate the limit.

$$\lim_{x\to \infty} \frac{e^{-x}}{x}$$

■ 5. Use the Squeeze Theorem to evaluate the limit.

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$$\lim_{x \to 0} \frac{\sin\left(\frac{1}{x}\right)}{\frac{1}{x}}$$

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SQUEEZE THEOREM, LIMIT OF AN INEQUALITY

1. Find $\lim_{x \to 4} f(x)$ if $x^2 + 1 \leq f(x) \leq 4x + 1$.

2. Find $\lim_{x \to 3} g(x)$ if $x^2 - 7 \leq g(x) \leq \sqrt{13 - x^2}$.

3. Find $\lim_{x \to 5} h(x)$ if $x^2 - 6x + 9 \leq h(x) \leq x - 1$.

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